

**What is claimed is:**

1. A method comprising the steps of:  
receiving from an input means an *in silico* oligomer;  
receiving from said input means at least one  
prescribed property of the oligomer;  
selecting a modification for generating a modified  
oligomer;  
generating *in silico* the modified oligomer having the  
prescribed property and selected nucleobase modification;  
and  
communicating the *in silico* modified oligomer to an  
output means.
2. The method according to claim 1 wherein the step of  
selecting the nucleobase modification is performed *in  
silico* by the computer.
3. The method according to claim 2 wherein the step of  
selecting the nucleobase modification is manually  
performed.
4. The method according to claim 1 wherein the input  
means is a computer.
5. The method according to claim 4 wherein the computer  
is connected to a network.
6. The method according to claim 5 wherein more than one  
computer is connected to the network.
7. The method according to claim 6 wherein the network  
is the internet.
8. The method according to claim 1 wherein the at least  
one prescribed property is a base chemistry.

9. The method according to claim 1 wherein the at least one prescribed property is a sugar chemistry.
10. The method according to claim 1 wherein the at least one prescribed property is a linker chemistry.
11. The method according to claim 1 wherein the at least one prescribed property is a conjugate.
12. The method according to claim 1 wherein the modification is a sugar modification.
13. The method according to claim 1 wherein the modification is a base modification.
14. The method according to claim 1 wherein the modification is a linker modification.
15. The method according to claim 1 wherein the modification is a conjugate modification.
16. The method according to claim 1 wherein the output means is a computer.
17. The method according to claim 1 wherein the output means is an automated synthesizer.
18. A method comprising:
  - receiving from an input means an *in silico* oligomer to be synthesized having a prescribed property;
  - generating synthesis instructions adapted to a synthesizer; and
  - communicating the synthesis instructions to the synthesizer thereby providing the oligomer to be synthesized.
19. The method according to claim 18 wherein the input means is a computer.
20. The method according to claim 19 wherein the computer is connected to a network.
21. The method according to claim 20 wherein more than one computer is connected to the network.
22. The method according to claim 21 wherein the network

is the internet.

23. The method according to claim 18 wherein the at least one prescribed property is a base chemistry.
24. The method according to claim 18 wherein the at least one prescribed property is a sugar chemistry.
25. The method according to claim 18 wherein the at least one prescribed property is a linker chemistry.
26. The method according to claim 18 wherein the at least one prescribed property is a conjugate.
27. The method according to claim 18 wherein the modification is a sugar modification.
28. The method according to claim 18 wherein the modification is a base modification.
29. The method according to claim 18 wherein the modification is a linker modification.
30. The method according to claim 18 wherein the modification is a conjugate modification.
31. The method according to claim 18 wherein the output means is a computer.
32. The method according to claim 18 where the output means is an automated synthesizer.
33. A method comprising:
  - a) providing a group of properties which define a target oligomer and from which group a sub-group is selected;
  - b) receiving the selected sub-group of properties according to a user selection;
  - c) generating *in silico*, an oligomer having the selected sub-group of properties;
  - d) determining *in silico*, synthesis instructions for the oligomer of step c); and
  - e) communicating the synthesis instructions of step d) to a synthesizer.

34. The method according to claim 33 wherein the group of properties comprises a physical property and a thermodynamic property.
35. The method according to claim 33 wherein the oligomer is an oligonucleotide.
36. The method according to claim 33 wherein the synthesizer is an automated synthesizer.
37. A method comprising:  
receiving from an input means an *in silico* oligomer to be synthesized having a prescribed property, a threshold criteria, and a user defined target;  
analyzing *in silico* the oligomer according to the prescribed property, the threshold criteria, and the target thereby producing an analysis report; and  
communicating the analysis report to an output means.
38. The method according to claim 37 wherein the threshold criteria is a pass fail criteria based on a measure of proper synthetic outcome.
39. The method according to claim 38 wherein the 85% proper synthetic outcome is a pass.
40. The method according to claim 37 wherein the target is a nucleic acid.
41. The method according to claim 37 wherein the target is an RNA.
42. The method according to claim 37 wherein the analysis report provides applicability of the oligomer for an intended purpose.
43. A method of selecting an oligomer from a library of oligomers according to user selection criterion comprising:  
receiving a target through an input means according to a user selection;  
receiving the user selection criterion, where the

user criterion is a property selected from the group comprising; a chemical property, a physical property, and a biological property, wherein each property is in relation to the oligomer of the library of oligomers;

obtaining a threshold activity level and a test assay;

comparing a plurality of oligomers of the library to the target according to the test assay, thereby determining a rank for each compared oligomer of the library;

grouping in an active set the oligomers having rank greater than the threshold activity level; and

communicating the active set to an output means.

44. The method according to claim 43 wherein the target is a nucleic acid and the selection criteria is a chemical property.

45. A method of designing an oligomer comprising:

receiving a target nucleic acid sequence;

receiving a defined criteria for at least one nucleobase of the oligomer;

receiving a prescribed set of properties comprising a physical property, a chemical property, or a biological property of the oligomer to be designed;

generating an oligomer design according to the prescribed set of properties and the target nucleic acid sequence;

generating *in silico* an oligomer according to the oligomer design; and

communicating said *in silico* oligomer to an output means.